Itemized Budget
Autonomous Lifeguard Group

Item #	Qty	Cost (each)	Description	Part #	Manufacturer	Vendor	Category	Notes
1	2	$173.63	45" RC Boat Hull (Giant Racer G-75 Mosquito Craft)	B757T6030	STOP	amazon	Aquatic	Going to test, then possibly modify or return.
2	4	$30.00	RC Boat Fender Skirt (Polyform G-4 Twin Eye Fender 6.5 x 23 - Black w/Air Adapter)	G-4-BLACK	Polyform	Boater's Marine Supply	Aquatic	
3	1	$105.00	Polyurethane Expanding Foam (2 gal kit 50/50 mix)		Various	Boat Builder Central	Aquatic	480 lbs of buoyancy U.S. Coast Guard Approved
4	3	$53.09	AquaCraft 28-35-2200kV Brushless Motor MiniMono	AQUB1805	AquaCraft	Tower Hobbies	Aquatic	
5	3	$28.69	Aquacraft Grim Racer 40X52/3, 3 Blade Prop, LH	AQUB9720	AquaCraft	funrcboats	Aquatic	40mm (1.57") x 52MM Pitch. Copper-Beryllium-Titanium. Must hand finish.
6	2	$53.09	AquaCraft 20-Amp LiPo ESC Minimono	LXBHKP	AquaCraft	Tower Hobbies	Aquatic, Power	20 Amp
7	2	$70.82	Turnigy nano-tech 5000mah 4S 45~90C Lipo Battery Pack	N5000.4S.45	TURNIGY	Hobby King	Power	5000mAh, 4 Cell (14.8V), 45C Constant / 90C Burst
8	2	$128.83	Waterproof NEMA 4X enclosure	HW-J161406SC	Nema	automation direct	Aquatic	4SCREWS OPQ CVR GRY 4X 16X14X6IN
9	2	$91.88	3DR GPS uBlox LEA-6 Breakout	LEA-6H	uBlox	3drobotics	Navigation	UART, USB interfaces. Includes ceramic antenna, LNA, SAW filter, and 3.3V batt.
10	2	$31.50	Barometric Pressure Sensor - BMP085 Breakout	SEN-11282	Bosch	sparkfun	Navigation	I2C interface. Piezoelectric, includes temp. sensor.
11	1	$18.04	Triple Axis Accelerometer Breakout	MMA8452Q	Freescale Semi	sparkfun	Navigation	I2C interface. 3-axis, 2 ISR pins, optional HPF.
12	1	$61.18	Triple-Axis Digital-Output Gyro ITG-3200 Breakout	ITG-3200	InvenSense	sparkfun	Navigation	I2C interface. 3-axis, optional LPF, and ISR pin.
13	1	$246.26	Barska Blackhawk ED Spotting Scope 20-60x 60mm Angled Body	AD11520	Barska	midwayusa	Navigation	Great at 600-800ft. 60mm, 20-60x.
14	1	$96.19	Vortex High Country Backpack Tripod	HCOUNTRY	Vortex	midwayusa	Navigation	Full size, 4.48 ft tall, 2.1 lbs.
15	4	$22.51	12-bit Absolute Magnetic Rotary Encoder with SSI and PWM Output incl. Diagnostic Functions	AS5045-ASST	ams	ams	Navigation	Absolute position sensing with 0.09 deg resolution.
16	2	$73.35	MLX90620 FIRray:16X4 Far InfraRed Array	MLX90620	Melexis	Future Electronics	Navigation	I2C interface. ~23 ft range.

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17	4	$20.03	Infrared Proximity Sensor - Sharp GP2Y0A21YK	SEN-00242	Sharp	sparkfun	Navigation	2.6 ft.
18	1	$42.89	XBee Pro 60mW U.FL Connection - Series 1 (802.15.4)	WRL-08710	Digi	sparkfun	Communication	UART interface. External antenna, 1 mi range, 250 kbps max
19	2	$42.89	XBee Pro 60mW PCB Antenna - Series 1 (802.15.4)	WRL-11216	Digi	sparkfun	Communication	UART interface. PCB antenna, 1 mi range, 250 kbps max
20	3	$5.18	Breakout Board for XBee Module	BOB-08276		sparkfun	Communication	Convert to standard pin spacing.
21	8	$3.08	2mm 10pin XBee Socket	PRT-08272		sparkfun	Communication	XBee standoffs for breakout board.
22	1	$7.33	2.4GHz Antenna - Adhesive (U.FL connector)	WRL-11320	TE Connectivity	sparkfun	Communication	2.4 GHz, 2 dB gain
23	1	$65.12	RFID Excalibur K9classicedp K9 Alarm	K9CLASSICEDP	Excalibur	amazon	Communication	Returns rover to base waypoint. Shah tested 50 ft range.
24	1	$56.30	Super High Intensity LED Waterproof Emergency Strobe Light (BLUE/RED)	PSZLEDSTB0421-BR	OLS	amazon	Communication	12V/24V: 100mA - 660mA/50mA - 330mA
25	2	$5.42	Anti-Theft High dB Lond Mini Piezo Siren for Car Alarm	B00A8DGAMQ	BestDeal USA	amazon	Communication	12V DC, 150mA/90V DC, 90mA, waterproof
26	4	$60.00	Board Runs				Other	
27	1	$150.00	Discrete Components				Other	
28	1	$200.00	Materials				Other	Steel, coating, acrylic, wood, MDF, foam
29	4	$11.96	PIC32MX320F128H uController	PIC32MX320F128H	Microchip	microchipdirect	Other	80 MHz, 16 KB RAM, 2 I2C/SPI/UART, 16 A/D, 5 timer/PWM, 2 comp., 53 I/O
30	3	38.04	chipKIT Uno32	CHIPKIT UNO32	Microchip	digilentinc	Other	PIC32MX320F128 for prototyping.
31		$166.65	Contingency (5%)					Cushion for unforseen events such as additional parts and rush delivery.
Total		3535.42						

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Link	Purchaser	
http://www.amazon.com/Mosquito-Racing-Electric-Control-Cooling/dp/B002F9TTBK	Shah	
http://www.boatersmarinesupply.com/m7/36797--polyform-g-4-twin-eye-fender-6-5-x-23-black-w-air-adapter.html		
http://boatbuildercentral.com/proddetail.php?prod=E_foam_2gal#.UKcDTpgR4nw		
http://www3.towerhobbies.com/cgi-bin/wti0001p?&I=LXBHKN&P=M		
http://www.funrcboats.com/ProductInfo.aspx?productid=AQUB9720		
http://www3.towerhobbies.com/cgi-bin/wti0001p?&I=LXBHKP&P=0		
http://www.hobbyking.com/hobbyking/store/__11957__turnigy_nano_tech_5000mah_4s_45_90c_lipo_pack.html		
http://www.automationdirect.com/adc/Shopping/Catalog/Enclosures/Non-Metal_(NEMA_4X_-a-_3R)/JIC_(6_in._X_4_in._to_20_in._X_16_in.)/HW-J161406SC		
http://store.diydrones.com/3DR_GPS_LEA_6_p/br-3drlea-6.htm	David	
https://www.sparkfun.com/products/9694	David	
https://www.sparkfun.com/products/10955	David	
https://www.sparkfun.com/products/9801		
http://www.midwayusa.com/product/766437/barska-blackhawk-ed-spotting-scope-20-60x-60mm-angled-body-with-tripod-and-hard-case-rubber-armored-black		
http://www.midwayusa.com/product/623795/vortex-high-country-backpack-tripod		
http://www.ams.com/eng/Products/Magnetic-Position-Sensors/Magnetic-Rotary-Position-Sensors/AS5045/(oi)/1	David sampled	
http://www.futureelectronics.com/en/Technologies/Product.aspx?ProductID=MLX90620ESFBAD000TUMELEXIS7020660&IM=0		

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Link	Purchaser	
https://www.sparkfun.com/products/242		
https://www.sparkfun.com/products/8710	John	
https://www.sparkfun.com/products/11216	John	
https://www.sparkfun.com/products/8276?	John	
https://www.sparkfun.com/products/8272	John	
https://www.sparkfun.com/products/11320	John	
http://www.amazon.com/Excalibur-K9classicedp-Alarm-Interupt-Includ/dp/B003NGCTS4/ref=sr_1_16?ie=UTF8&qid=1357789440&sr=8-16&keywords=k9+alarm		
http://www.amazon.com/gp/product/B009EFJBHK/ref=noref?ie=UTF8&psc=1&s=automotive		
http://www.amazon.com/BestDealUSA-Anti-Theft-Piezo-Siren-Alarm/dp/B00A8DGAMQ		
http://www.microchipdirect.com/ProductSearch.aspx?keywords=PIC32MX320F128H	David sampled	
http://www.digilentinc.com/Products/Detail.cfm?Prod=CHIPKIT-UNO32		